

WHAT IS CLAIMED IS:

1. In a signal amplifying circuit for a CCD (Charge Couple Device) camera, the improvement comprising providing an auxiliary amplifying circuit  $m$ , amplification of the degree of the auxiliary amplifying circuit  $m$  being raised according to necessity so as to maintain the video output voltage at a predetermined voltage and vary the amplification degree of the processing circuit (d) to broaden the range for photographing.

2. In a signal amplifying circuit for a CCD (Charge Couple Device) camera the improvement comprising providing an automatic gain control auxiliary amplifying circuit ( $m_1$ ) having a high S/N ratio, and low amplification degree and an automatic gain control auxiliary amplifying circuit ( $m_2$ ) of low S/N ratio, and high amplification degree, and selectively using said automatic gain control auxiliary amplifying circuit ( $m_1$ ) of high S/N ratio or said automatic gain control auxiliary amplifying circuit ( $m_2$ ) of low S/N ratio as needed.

3. A signal amplifying circuit in a CCD (Charge Couple Device) camera as claimed in claim 2, including providing in a signal processing circuit (d) of a video camera with the functions of said two automatic gain control auxiliary amplifying circuits ( $m_1$ ,  $m_2$ ) in one AGC amplifying circuit  $em$ , switching said functions by outer switching.

4. In a signal amplifying circuit for a CCD (Charge Couple Device) camera as claimed in claim 1, including providing a

detecting means to detect a change of object illumination, and detecting the output voltage or the signal level in signal amplifying process.

5. In a signal amplifying circuit for a CCD (Charge Couple Device) camera as claimed in claim 2, including providing a detecting means to detect a change of object illumination, and detecting the output voltage or the signal level in signal amplifying process.

6. In a signal amplifying circuit for a CCD (Charge Couple Device) camera as claimed in claim 3, including providing a detecting means to detect a change of object illumination, and detecting the output voltage or the signal level in signal amplifying process.

7. In a signal amplifying and processing circuit for a CCD camera the improvement comprising; an auxiliary amplifying circuit (m) in said CCD camera signal amplifying circuit; said auxiliary amplifying circuit constructed to increase the amplification during low light levels to maintain the video output voltage at a predetermined voltage and vary the amplification degree of the CCD camera processing circuit; whereby the range of photography is broadened.

8. The circuit according to Claim 7 in which said auxiliary amplifying circuit comprises an automatic gain control auxiliary amplifying circuit (m<sub>1</sub>) having a high S/N ratio and low amplification degree and an automatic gain control auxiliary

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amplifying circuit ( $m_2$ ) having a low S/N ratio and high amplification degree; and selective means for selecting said high S/N auxiliary amplifier or said low S/N auxiliary amplifier.

9. The circuit according to Claim 8 in which said high S/N auxiliary amplifier and low S/N auxiliary amplifier are incorporated into an existing AGC amplifier in said CCD camera amplifying and processing circuit; said selective means including a switch for switching between said high S/N auxiliary amplifier and low S/N auxiliary amplifier.

10. The circuit according to Claim 9 in which said selective means includes a detector for detecting object illumination and signal level output voltage of said CCD signal amplifying and processing circuit.

11. The circuit according to Claim 8 in which said selective means includes a detector for detecting object illumination and signal level output voltage of said CCD signal amplifying and processing circuit.

12. The circuit according to Claim 7 in which said selective means includes a detector for detecting object illumination and signal level output voltage of said CCD signal amplifying and processing circuit.

13. A method of improving a CCD camera signal amplifying and processing circuit comprising; inserting an auxiliary amplifying circuit in said CCD camera signal processing circuit

for maintaining the video output voltage at a predetermined level during low light conditions and vary the amplification degree whereby the range of photography is broadened.

14. The method according to Claim 13 comprising insert an automatic gain control auxiliary amplifying circuit ( $m_1$ ) having a high S/N ratio and low amplification of an automatic gain control auxiliary amplifying circuit ( $m_2$ ) having a low S/N ratio and high amplification; and selecting an automatic gain control auxiliary amplifier as needed.

15. The method according to Claim 14 including inserting said pair of automatic gain control amplifier ( $m_1$ ,  $m_2$ ) in existing AGC amplifier in said CCD camera signal processing circuit.

16. The method according to Claim 15 in which said step of selecting an automatic gain control auxiliary amplifier includes detecting a change in object illumination and signal level output voltage of said CCD signal amplifying and processing circuit.

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